

Mass spectrometry-based proteomics and its applications in biology

Aim: To provide the participants with: i) an overview of the major high-end quantitative proteomics technologies with focus on stable isotope labelling and high-resolution mass spectrometry ; ii) an overview of the wealth of biological applications that quantitative proteomics screens can be applied in, including global proteome quantitation, PTM analysis and protein-protein interaction screens.

Content:

MS technologies (orbitrap instrumentation and fragmentation mechanisms for peptide sequencing), Quantitative MS (SILAC, iTRAQ and Label free), Applications of quantitative proteomics in biology: Large-scale proteome mapping of model organisms, Epigenetics and proteomics, stem cell biology, Impact of microRNAs on proteome expression, In-vivo SILAC, Large-scale phosphoproteomics, Other PTMs, Computational proteomics, organellar proteomics, Protein-protein interaction screens, and protein-PTM interactions.

Participants. PhD students.

Language. English

Form. A mixture of lectures, journal clubs (presented by the participating students) and scientific seminars by invited, international speakers. Technical lectures about modern proteomics technologies used to study cellular signalling pathways, protein-protein interactions and global proteome changes.

ECTS-credits: 3.5 ECTS

Course director. Prof. Jesper V. Olsen, Assoc.Prof. Michael L. Nielsen, and Prof. Chunaram Choudhary Department of Proteomics, NNF Center for Protein Research.

Teachers. Invited speakers: Matthias Selbach, Marcus Krüger, Boris Macek, Jürgen Cox, Blagoy Blagoev, Jens Andersen, Michiel Vermeulen, Tiziana Bonaldi, Falk Butter and Frank Kjeldsen. **Other teachers:** Michael L. Nielsen, Chunaram Choudhary, Jesper V. Olsen, Lars J. Jensen, Christian Kelstrup, Brian T. Weinert, Chiara Francavilla, Alicia Lundby and Mads Grønborg.

Dates: 10-14 November 2014

Place. NNF Center for Protein Research, Panum Building, University of Copenhagen.

Course secretary. Anne Vognsen, BRIC: Anne.vognsen@bric.ku.dk

Registration: Before September 1st 2014

No admission after deadline. Admission for Ph.D. students will be allocated on a first-come, first-served basis. Applications from external participants will be considered after the closing date. The application must be sent via the web-application.